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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,497	12/23/1999	ISAO MIHARA	0039-7495-2S	7481

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EXAMINER

BHATNAGAR, ANAND P

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 09/26/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/471,497

Applicant(s)

MIHARA ET AL.

Examiner

Anand Bhatnagar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07/07/03 (paper #8).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,4,7,9,16,23,27 and 29-37 is/are pending in the application.
- 4a) Of the above claim(s) 4, 7, 16, and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,9,27 and 29-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's amendment filed on 07/07/03 (paper #8) has been entered and made of record.
2. Applicant has cancelled claims 2, 3, 5, 6, 8, 10-15, 17-22, 24-26, and 28 and has added 9 new claims, claims 29-37. Claims 1, 4, 7, 9, 16, 23, 27, and 29-37 are pending. Claims 1, 7, 9, 23, and 27 have been amended. Claims 4, 7, 16, 23 were previously withdrawn from examination by the examiner since they read on a nonelected species and still presently read on nonelected species, therefore will not be examined.
3. Applicant's arguments with respect to claims 1, 9, and 27 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 30, 33, and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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Applicant has added claims 30, 33, and 36 with a limitation where the deformed image is moved in parallel and refers to page 37, lines 19-25 of the original specifications (paper #8 page 8 last paragraph). The specifications disclose on page 37, lines 19-25, where a deformation is taking place my back and forth motion in the depth direction (z-axis) while a right and left rotation taking place in the vertical direction (y axis). Examiner does not read this as a deformed image is moved in parallel since there is no parallel motion taking place since the motions are in different axes, z and y axis, which are perpendicular to one another.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1, 9, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Guenter et al. (U.S. patent 6,072,496).

Regarding claims 1 and 9: An image recognition method (col. 1 lines 8-10 and col. 2 lines 20-24) comprising:

obtaining a deformed image by three-dimensionally deforming a captured range image having three-dimensional information including depth information of an object to be sensed (col. 1 lines 19-20 and 25-30 and col. 5 lines 16-23, where 3D data is obtained by video cameras and the where the sets of the deformation vectors used to move the base model is read as deforming the captured video images and the captured video sequence is read as a range of images); and

recognizing three-dimensional motion of an object in the range image by comparing the obtained three-dimensionally deformed image with a newly captured range image (col. 2 lines 30-37 and col. 5 lines 20-30, where the deformed images are compared frame to frame, i.e. a deformed image compared to a newly captured range image, the comparison is the markers from one frame to another frame which shows the motion between frames and throughout the video sequence).

Regarding claim 27: It is rejected for the same reason as claims 1 and 9 above and for the following limitation of: a computer readable program code (fig. 28 element 320).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 29-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guenter et al. (U.S. patent 6,072,496) and in view of Bradski (Computer Vision Face Tracking for use in a perceptual user Interface, Gary R. Bradski, Microcomputer Research Lab, Santa Clara, CA., Intel Corporation, Second Quarter 1998).

Regarding claims 29, 32, and 35: An image recognition apparatus wherein the deformed image is a rotated deformed image.

Guenter et al. discloses to recognize 3D motion within a within a sequence of video images by deforming the data in the images. Guenter et al. does not teach where the deformed image is due to a rotated deformed image. Bradski teaches to determine 3D motion of a rotated image (Bradski; fig. 8 where the object is rotated and images taken of the deformed/rotated object and the motion determined from one frame to another). It would have been obvious to one skilled in the art to combine Bradski to Guenter because they are analogous in determining motion in a sequence of video images. One in the art would have been motivated to incorporate the teaching of Bradski to that of Guenter et al. in order to have the ability for a computer to track, understand the pose, gestures, and emotional expressions of humans (Bradski; page 1 left column bottom paragraph).

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Regarding claims 31, 34, and 37: Bradski further teaches an image recognition apparatus wherein the deformed image is a contracted by rotation (Bradski; page 6 right column top paragraph, where the image is scaled and translated, where the scaling is read as expansion/contraction and translation as rotation).

Regarding claims 30, 33, and 36: Bradski further teaches an image recognition method wherein the deformed image is moved in parallel (Bradski; fig. 8, where the motion is in any one of the axes (X,Y, or Z) in combination of a head roll, this is read as in parallel).

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

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the statutory period for reply expire later than SIX MONTHS from the date of this final action.

**Contact Information**

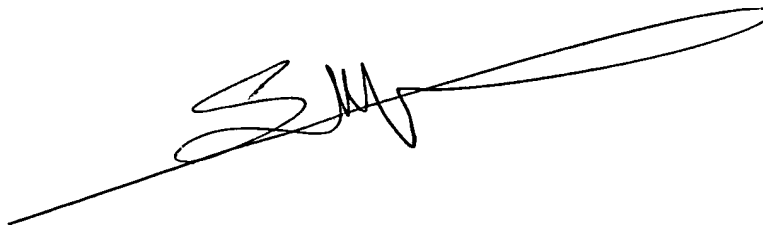
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anand Bhatnagar whose telephone number is (703) 306-5914, whose supervisor is Amelia Au whose number is 703-308-6604, group fax is 703-872-9306, and Tech center 2600 customer service office number is 703-306-0377.

AB

Anand Bhatnagar

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September 15, 2003

A handwritten signature in black ink, appearing to read 'SAMIR AHMED', with a long horizontal line extending to the right.

**SAMIR AHMED**  
**PRIMARY EXAMINER**